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CONSUMPTION PATTERNS FOR DAIRY PRODUCTS, SPRING 1955, WITH INDICATIONS OF ANALYTICAL USES

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CONSUMPTION PATTERNS FOR DAIRY PRODUCTS, SPRING 1955, WITH INDICATIONS OF ANALYTICAL USES [1]

This article is the first of a series for major groups of foods designed to introduce marketing people and other users of The National Food Situation to the wealth of new information from the Department's nationwide 1955 Household Food Consumption Survey [2]. The basic data on consumption, money value, and extent of use are being published in the first five survey reports entitled Food Consumption of Households in the United States and in the Northeast, the North Central Region, the South and the West [3].

To bring the great mass of data on the consumption of dairy products by the many groups of households into focus for use in studying a variety of economic dairy problems, especially in marketing, we consider a series of questions about the relative share of dairy products in the household food dollar, the regional distribution of the household market, marketing-purchasing balances by region, current levels and trends in consumption and so on.

What Share of the Household Food Dollar Goes to Dairy Products?

The present importance of dairy products in the household food budget [4] and the factors changing this relationship are basic to analytical work by marketing people. They help to point the way for the allocation of resources such as processing facilities, space in stores and warehouses, and sales efforts by agencies engaged in moving food from the farmer to the consumer.

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[1] By Thomas J. Lanahan, Jr., Statistical and Historical Research Branch, AMS. [2] See also "Review of U. S. Food Expenditure Patterns, Spring 1955," The National Food Situation, NFS-78, Oct.-Dec. 1956, pp. 32-47. [3] 1955 Household Food Consumption Survey Reports Numbers 1 through 5 may be obtained from the Office of Information, U. S. Department of Agriculture, Washington 25, D.C. Report No. 1 covers the U. S. as a whole; No. 2, the Northeast; No. 3, the North Central Region; No. 4, the South; and No. 5, the West.
[4] Household food includes all food served to household members in the home (including guest, boarders, hired help) and food carried from home in packed meals. Meals and snacks purchased and eaten away from home are excluded. All references to "dairy products" in this article include butter.

NOTE:
The quantity per household figure for "Ice cream, ice milk (commercial)," column 18, on pages 37, 39, 41, 43 and 45 of Food Consumption of Households in the United States, Report No. 1 of the 1955 Household Food Consumption Survey, should have been labeled "quarts" not "pounds".

Dairy products took about 16.6 percent of the total amount spent by households for food used at home 5/ in the spring of 1955 (table 15). Meats accounted for substantially more of the household food dollar (25 percent), but cereals and bakery products, vegetables, poultry and eggs, and fruits ranked below dairy products 6/. Purchases of fluid whole milk accounted for almost half of the total dairy product dollar, followed by ice cream (14 percent), butter (11 percent), whole-milk cheese (10 percent).

Among the four regions of the country, the heaviest spenders for dairy products, both in actual dollars spent per household and in the share of the food dollar, were the households in the northeastern region. Southern households spent the least, principally because nearly half of them were rural households, which produced much of the dairy products consumed.

Table 15.- Dairy product share of home food dollars, by urbanization and region, all households, in a week in spring 1955 1/

Urbanization	United States	Northeast	North Central	South	West
	Percent	Percent	Percent	Percent	Percent
All urbanizations	16.6	17.5	17.3	14.5	16.8
Urban	16.8	17.4	16.9	15.7	17.1
Rural nonfarm	16.7	18.2	18.6	13.9	16.5
Farm	13.7	15.5	16.9	9.7	14.2

1/ 1955 Household Food Consumption Survey. Dairy expense includes butter expense. Food used at home excludes expense for alcoholic beverages.

5/ As with other AMS data on food marketing and consumption, the data on household food consumption for all foods, used in this article, have been adjusted to exclude alcoholic beverages whenever possible.

6/ "Review of U. S. Food Expenditure Patterns, Spring 1955," The National Food Situation, NFS-78, Oct.-Dec. 1956, p. 40.

Households in urban areas and those in rural areas not operating farms (called rural nonfarm), spent about the same shares of their food dollars on dairy products (about 17 percent), but farm households averaged only 14 percent 7/.

However in the total picture of household food consumption the relative importance of all the dairy products consumed by farm households actually ran higher than for the other urbanization groups, because of home production. When we look at the breakdown of the money value of all foods consumed--whether purchased, home-produced or received as gift or pay 8/--we find that for the farm group of households dairy products accounted for 22 percent of the total money value (table 16). Comparison on a total consumption basis does not materially change the picture for the nonfarm groups. On this basis the South is more in line with the other regions, indicating how much home production affects the southern household market for dairy products.

Table 16.- Dairy product share of total money value of food used at home by urbanization and region, all households, in a week in spring 1955 1/

Urbanization	United States	Northeast	North Central	South	West
	Percent	Percent	Percent	Percent	Percent
All urbanizations	17.3	17.5	17.5	17.0	16.8
Urban	16.5	17.2	16.5	15.4	16.6
Rural nonfarm	16.9	17.9	17.3	16.3	16.1
Farm	21.8	20.6	21.8	22.4	20.9

1/ 1955 Household Food Consumption Survey. Value of dairy products includes butter. Total value of food used at home excludes alcoholic beverages.

7/ The urban category covers households living in communities of 2,500 or more population and in suburbs of large cities. Rural nonfarm includes households living outside urban areas and not operating a farm.

8/ Quantities of foods raised for home use or received as a gift or as payment for services rendered were valued at average prices paid by households of the same urbanization-region group.

Has the importance of dairy products in the total household food costs changed in recent years? We can find some indication of the answer by comparing data from the 1955 survey with comparable data from a survey made in the spring of 1948. 9/ This shows that in the spring of 1948 urban households of 2 or more persons reported spending 19.3 percent of their household food dollars for dairy products, but in 1955 this proportion had dropped to 16.9 percent (table 17). Over this period the amount spent per household for all foods used at home increased around 11 percent, but the amount spent for dairy products showed little change.

Table 17.- Cost of purchased dairy products used per urban household of 2 or more persons in a week in spring 1948 and 1955, with comparisons 1/

Item	Average cost per household					
	1948	1955	Percentage of home food cost 2/		Percentage of cost of dairy products 3/	
			1948	1955	1948	1955
	Dollars	Dollars	Percent	Percent	Percent	Percent
Selected dairy products						
Fluid whole milk	2.13	2.17	9.5	8.6	49.0	51.2
Buttermilk	.06	.07	.3	.3	1.4	1.7
Evaporated milk	.25	.13	1.1	.5	5.7	3.1
Cream	.24	.14	1.1	.6	5.5	3.3
Ice cream	.42	.55	1.9	2.2	9.7	13.0
Cheese (except cottage)	.44	.41	2.0	1.6	10.1	9.7
Butter	.68	.44	3.0	1.8	15.6	10.4
Total cost of dairy products 3/	4.35	4.24	19.3	16.9	100.0	100.0
Total home food cost 2/	22.52	25.10	100.0	100.0	---	---

1/ Food Consumption of Urban Families in the United States (1948), USDA Agr. Inform. Bul. No. 132 and Food Consumption of Households in the United States, Report No. 1 of USDA 1955 Household Food Consumption Survey.

2/ Excludes alcoholic beverages.

3/ Includes butter.

9/ Food Consumption of Urban Families in the United States (1948), USDA Agr. Inform. Bul. No. 132 and Dairy Products in City Diets, Commodity Summary No. 6, 1948 Food Consumption Survey, ARS, USDA.

What are some of the probable reasons for this drop in the relative importance of dairy product expenses? There is no simple answer because of the many factors tending to push these outlays in both directions.

Toward the downside are these: Retail prices of dairy products decreased about 2 percent between spring 1948 and spring 1955, while the prices of all food at home increased 5 percent 10/. More meals away from home seem likely to have cut household purchases of dairy products relatively more than other foods. In 1955 more families reported expenses for food away from home than in 1948 and food away from home accounted for a greater share of food expense (including alcoholic beverages). These shifts probably affected the use of butter for sandwiches and other dairy products common in carried lunches or consumed at home. However, we cannot tell from these data whether they affected the total amount of dairy products consumed.

Another possible explanation of cutting back on expenditures for dairy products for home use is the shift to the consumption of other foods; for example, the shift from butter (included here in the dairy group) to margarine, and shifts from home baking to the purchase of more bakery products (with the consequent shift in use of milk from the direct form to an "invisible" form). Some of the commercially prepared foods, practically non-existent in 1948, but important by 1955 includeddairy products among their ingredients. There are probably more of the built-in services in the non-dairy foods which increase the relative cost of those items. The relatively large increase in meat purchases in the household food budget probably also played an important part in the drop in the relative importance of dairy products.

Some of the factors pushing up the share of food dollars going to dairy products were the larger number of children in the households in 1955; the steady but slight long-term upward trend in the use of fluid whole milk, the most important single dairy item in the household budget; expansion of purchases of ice cream, ice milk and related dairy items; and increased demand for dairy products consisting mainly of milk solids-not-fat

How is the Household Market for Dairy Products Distributed?

We have just looked at the importance of expenses for dairy products from the point of view of the household. Now we will look at the distribution of the household food market from the sellers' point of view. That is, how was the amount spent by households for dairy products distributed among the regions of this country?

10/ There are some indications that the price levels for dairy products were relatively high in the spring of 1948 and underwent a substantial reduction in the latter part of the year.

Some approximations of this in the spring of 1955 can be made by multiplying (weighting) the survey average expenses per household in each region by the number of eligible households in each region in this survey. 11/ These calculations indicate that the North Central Region accounted for the largest share of the market, 34 percent of the total. The Northeast followed with 32 percent, while the South and the West made up 21 and 13 percent respectively (table 18).

It should be remembered that these figures reflect both the regional average expense per household (which in turn is affected by the quantity used and prices paid) and the relative number of households in each region. Northeastern households spent 6 percent more for dairy products per household than those in the North Central Region (see table 19). But the North Central Region included 15 percent more housekeeping households than the Northeast (table 18).

Table 18.- Regional distribution of the United States household market for all foods, used at home, total dairy products, and selected dairy items, and distribution of housekeeping households, in a week in spring 1955 1/

Item	United States	Northeast	North Central Region	South	West
	Percent	Percent	Percent	Percent	Percent
All purchased food used at home 2/	100.0	30.0	32.9	24.2	12.9
All purchased dairy products 3/	100.0	31.6	34.3	21.0	13.1
Fluid whole milk	100.0	34.5	33.6	19.4	12.5
Evaporated milk	100.0	18.4	16.9	51.0	13.7
Cheese (excluding cottage)	100.0	32.9	29.4	24.2	13.5
Butter	100.0	35.2	42.1	11.8	10.9
Housekeeping households 4/	100.0	27.4	31.4	29.2	12.0

1/ Derived from data of 1955 Household Food Consumption Survey. Each region's average expense for food used at home per household was multiplied by number of eligible housekeeping households in the region to get total expenditures for the sample, which were then compared with the U. S. total.

2/ Excludes alcoholic beverages.

3/ Includes butter and minor dairy products not listed.

4/ Distribution of housekeeping households eligible for the survey, that is, those in which at least one person had 10 or more meals from household food supplies in the 7 days preceding the interview.

11/ The survey was limited to housekeeping households, those in which at least one person had 10 or more meals from household food supplies in the 7 days preceding the interview. Persons living on military posts or in private or public institutions were excluded.

The South had 29 percent of all the households but accounted for only 21 percent of the commercial dairy market. In all the other regions, the proportion of the market was higher than the proportion of households. The distribution of the household food market for dairy products was similar to that for all foods purchased for use at home.

Now what about the market for individual dairy items? The Northeast was the leader for fluid whole milk with 34 percent of the total market and the North Central Region led in butter with 42 percent (table 18). The distribution of the household market for evaporated milk showed an entirely different picture with the South accounting for over half and the North Central Region and the Northeast each taking somewhat less than a fifth. Factors behind these market patterns will be touched upon in later sections.

As in the market for all dairy products (purchased), farm households accounted for less than their relative share of the household market for many dairy items because farm households depend so much more on home-produced supplies. This was particularly true for fluid whole milk, of which about 80 percent of the consumption was home produced. On the other hand, farm households were quite important buyers in the butter and cheese markets.

Analysis of future market trends for dairy products would require appraisal of the probable effect of such factors as the expected population trends, migration between regions and urbanizations, shifts to higher incomes, reduction in importance of home food production and the like. For such an analysis more detailed figures from the survey reports for use with other market and related data will have to be considered at length. A few examples of how these more detailed survey data can be used are presented later in this article, but in the analysis of most related marketing problems much summarization and study of these basic data will be required.

What are the Marketing - Purchasing Balances for Dairy Products by Region?

The extent to which the demand for dairy products by each region of the country is satisfied or not satisfied by its production and the reasons therefor are of considerable importance in dairy marketing analysis. The Crop Reporting Board of AMS has for some years compiled data on the regional production and marketings of milk by farmers.[12] We have summarized these figures in terms of milk fat content. From the 1955 household survey we now have usable matching data for deriving an approximation of the regional distribution of the quantity of purchased dairy products used by households in one week of spring 1955. These data also have been summarized in terms of the milk fat content of the items purchased.[13]

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[12] Milk - Farm Production, Disposition and Income, 1954-55, AMS-30 (1954-55), Crop Reporting Board, Agricultural Marketing Service, USDA, pp. 8-9.

[13] Table 5 of the survey reports presents data on quantity of all the milk, cream, ice cream and cheese used in terms of milk fat and of milk solids-not-fat content. For this article we have added the milk fat content of the butter used (.805 of each pound) to the published totals for milk fat to arrive at totals for all dairy products, including butter.

Here is the regional distribution of the total quantities of milk marketed by farmers in the year 1955 and a similar distribution for the household purchases of dairy products (based on survey data for consumption of purchased dairy products by households during one week in spring 1955), both in terms of milk fat content:

	U. S.	Northeast	North Central	South	West
	Pct.	Pct.	Pct.	Pct.	Pct.
Milk marketed by farmers	100	18	52	17	13
Dairy products purchased	100	31	37	19	13

The reader will note that the regional distribution of the quantities of dairy products purchased by households (above) shows some variation from that for expenditures for dairy products purchased (table 18). Part of this difference is due to the use of milk fat (and the exclusion of milk solids-not-fat) as the measure for summarizing the quantities of the various dairy products used. The use of the milk fat measure tends to give more weight in the total to regions which purchase relatively more of the high milk fat items (e.g. households in the North Central Region use more butter).

Farmers in North Central Region sell a little over half of all the milk marketed in the U. S., while households in this region accounted for a little more than one-third of total purchases of dairy products. In spite of the high milk consumption rate in this region, there are still large quantities of milk available for shipment to other regions in some form. Although this fact has been known for years, adequate measures have not been available.

In this comparison the Northeast has a large deficit of milk in dairy products, marketing only about one-fifth of the total, while buying nearly one-third. The South is a deficit area, but to a lesser degree. The West appears to be marketing and buying about the same proportions of the total. Western milk imports are limited by the great distance of other producing areas from Western population centers and the limited number of highway and railroad facilities through the western mountain ranges.

Data on sales used here cover all milk marketings by farmers, while the purchase data on dairy products refer only to those bought by households for use at home. Dairy foods purchased by institutions, restaurants, Armed Forces, Government programs, etc. are not included here. Among these purchases only the Government purchase programs are likely to vary much from the household regional pattern, so the latter is quite usable.

How Do Household Consumption Patterns for All Dairy Products Vary?

A quick answer to this question is: It depends to some extent on which measure you use. The variety of dairy products is such that there is no one satisfactory way of combining for all purposes the numerous forms of products (fresh, dried, frozen, etc.) from several sources (purchased, home-produced, or gift or pay) and for many uses (for beverages, cooking, table spread, side or main dish, and dessert).

An average quantity figure for all dairy products combined presents difficult problems, because of the difficulty of summing the many forms of the different dairy products. Over the years statisticians have developed a number of measures which have been used to summarize the information on quantities of dairy products, which were used for the 1955 survey. These include (1) milk fat content 14/, (2) milk solids-not-fat content, and (3) fluid milk equivalent computed on the basis of the calcium content of the product for use in nutritional analysis 15/.

Since the milk prices paid to farmers have largely depended on fat content of the milk sold, milk analysts will find the milk fat summaries of the survey particularly useful. Preliminary study of these data reveal that the north central, the northeastern and western regions used about the same quantities per person 16/ of purchased dairy products in terms of milk fat content. The South was about 50 percent below the other regions. This difference is greatly narrowed when home-produced dairy products are included in the comparison. The fact that these figures include the milk fat in butter but do not include margarine, which is used instead of butter to a considerable extent in the South, also adds to these differences among regions. The quantity of milk fat used per person in households in the forms of purchased dairy products is clearly tied to family income, increasing sharply in the lower range, more slowly above $5,000. The levels of consumption of purchased milk fat per person in households of comparable income are similar for all regions except for the South, which is lower.

Because of the emphasis on the dietary significance of milk solids-not-fat and the growing economic interest in these elements in milk, data on such content of the quantity of all the dairy products combined were computed from the survey information. In 1955 the range of differences among regions was considerably smaller than for milk fat. The South is more in line with other regions, though still lower. The quantity per person of milk solids-not-fat in purchased dairy products rose sharply with income up to $4,000, then practically leveled off. Also, for households with incomes over $6,000 the South had about the same purchase rate as the other regions.

Money value is a good measure when we want to consider at the same time the effect of both the quantity used and the price paid. Price serves as a weighting factor which, especially when combining rather unlike items, gives each item its correct value importance in the total.

14/ See footnote 13, page 47.

15/ Approximately the quantity of milk to which the various dairy products (except butter) are equivalent in calcium.

16/ Average per household as shown in survey reports divided by average household size (21 meals served at home equals 1 person).

The average money value of purchased foods used (as collected in the 1955 survey) is for most purposes equivalent to average expenditures 17/. Expenditures are particularly useful for most commercial market analysis. On this basis, households in the Northeast came out about 16 percent above the U. S. average outlay per household for dairy products. The West and the North Central Region were about 10 percent above the U. S. average and the South was about 28 percent below (table 19).

The northeastern region maintained its rather large differential over the other regions when we consider purchases of dairy foods by rural groups and was about the same as the North Central Region for the urban group. The South had consistently low average household expenses for each of the urbanization groups.

When we rank the regions according to the money value of all dairy products consumed (purchased, home-produced, and gift or pay) we get another picture (table 19). The North Central Region is ahead of the Northeast, and the South, while still in the lowest position, compares more favorably with the other regions. The urban values are about the same as when we consider purchases alone, but the rural households, particularly in the South, are increased considerably when we take into account the value of home production.

How Important is Home Production in the Total Dairy Picture?

Since home-produced foods consumed by urban households were not tabulated separately from the gift and other non-purchased food sources, we have to answer this question for households in all urbanization groups combined indirectly. In the spring of 1955, U. S. households reported that 86 percent of the money value of all the dairy products they used was purchased (table 20), about the same figure as for all foods used at home.

Home production of dairy products was more important in the total dairy picture of the South than in other regions of the country. All southern households together reported having obtained from sources other than their own purchases, 29 percent of the value of the dairy products they used. Southern farm households home produced about 72 percent of the value of their dairy foods, compared with the U. S. farm average of 62 percent. The South's figure is very high when one considers that quite a few of the dairy products included are of a processed nature, often not made on the farm. Consumption of home-produced items for U. S. farm households was concentrated on whole milk and butter. In the South, farm households bought only 9 percent of the fresh whole milk and 11 percent of the butter (table 20).

17/ For a large group of households (as in the survey) average quantities of food purchased tend to equal the average amounts used. Of course, for individual households there is considerably more variation since there is less chance for the lags between time of purchase and time of use to cancel than there is with averages based on a large number of cases.

Table 19.- Average money value of dairy products used at home, all sources and purchased only, by region and urbanization, all households, in a week in spring 1955 1/

Region	All dairy products used 2/				Purchased dairy products used			
	All urbanizations	Urban	Rural nonfarm	Farm	All urbanizations	Urban	Rural nonfarm	Farm
	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.
United States	4.22	4.04	3.97	5.88	3.62	3.98	3.42	2.07
Northeast	4.46	4.35	4.46	6.69	4.21	4.30	4.10	2.94
North Central	4.50	4.37	3.97	6.12	3.97	4.33	3.78	2.70
South	3.70	3.18	3.61	5.42	2.62	3.08	2.57	1.25
West	4.29	4.12	4.24	6.42	3.98	4.10	4.00	2.76

1/ 1955 Household Food Consumption Survey. Includes butter.
2/ Includes home-produced products and foods received as gift or pay as well as purchased.

Table 20.- Share of purchases in total value, all dairy products, fluid whole milk, and butter used at home, rural households, by region, in a week in spring 1955 1/

Urbanization and region	Percentage of total money value		
	All dairy products 2/	Fluid whole milk	Butter
	Pct.	Pct.	Pct.
All urbanizations			
United States	86	81	87
Northeast	94	94	96
North Central	88	84	96
South	71	62	52
West	93	89	95
Rural nonfarm			
United States	86	83	80
Northeast	92	94	89
North Central	95	95	96
South	71	61	50
West	94	94	88
Farm			
United States	35	16	53
Northeast	44	22	66
North Central	44	20	83
South	23	9	11
West	43	22	71

1/ 1955 Household Food Consumption Survey.
2/ Includes butter.

The money value of home-produced dairy products used by farm households did not vary much with family income (table 21). Home production did play a very important role in the dairy budget of low-income households, even more so than for all foods combined. Three-fourths of the value of all dairy products consumed by farm households with annual money incomes under $1,000 was home-produced.

The strength of the competition from home-produced supplies for the commercial market for dairy products in the several regions and among urbanization groups, and trends in home production are important to marketing people because they provide some indications of what may be expected for the future, considering population shifts among regions and among urbanization groups, income changes and so on.

Has the importance of home production in the household dairy picture changed much? Comparing the 1955 data on the extent of home production of dairy products with those from a similar survey conducted in 1942, we find that home production of dairy products has become much less important since 1942. 18/ The proportion of home-produced foods in the total money value of all dairy products used by rural nonfarm households dropped from 34 percent in 1942 to 8 percent in 1955. Farm households did not cut down so sharply, going from 85 percent to 62 percent (table 22).

Most of this cut back in home production came in the proportion of households producing dairy products for home use. For example, only about two-thirds of the farm households reporting for one week in the spring of 1955, said they had used any fluid whole milk which they had produced on their farms, compared to better than four-fifths of the households doing so in 1942. The average quantity of home-produced fluid whole milk consumed per farm household having such supplies was about the same in both years. On top of this, it should be noted that the proportion of farm households in the total number of housekeeping families dropped from 17 percent in 1942 to 11 percent in 1955.

What are the Consumption Patterns for the Major Dairy Items?

In spring of 1955 there was considerable variation among the regions and urbanization groups in the purchase rates for the various dairy items. For many items, a striking difference shows up between the South and the rest of the country. On the average, the South is quite a bit lower than the rest of the country in the per person purchases of fluid whole milk, cream, ice cream and butter; but higher in purchases of buttermilk and evaporated milk (table 23). Relatively low purchases by rural households play a big part in keeping the South below the U. S. average purchase rate, as already described. When all sources of dairy foods used are considered, the variations in consumption rates among regions and urbanization groups decreases considerably for items where home production is important (table 24).

18/ Family Food Consumption in the United States (Spring 1942), USDA Misc. Pub. No. 550.

Table 21.- Contribution of home-produced foods to money value of total foods and of dairy products used at home, U. S. farm households, by income, in a week in spring 1955 1/

1954 money income after income taxes	Food used at home					
	Total 2/			Dairy products 3/		
	All food sources 4/	Home-produced		All food sources 4/	Home-produced	
		Value	Percentage of all food sources		Value	Percentage of all food sources
	Dollars	Dollars	Percent	Dollars	Dollars	Percent
All households 5/	26.96	11.04	41	5.88	3.64	62
Households of 2 or more persons						
Under $1,000	21.19	10.00	47	5.09	3.93	77
$1 - 2,000	24.50	10.59	43	5.29	3.65	69
$2 - 3,000	28.01	11.51	41	6.24	3.96	63
$3 - 4,000	28.95	11.33	39	6.15	3.47	56
$4 - 5,000	31.20	12.09	39	6.41	3.33	52
$5 - 6,000	33.46	11.35	34	6.96	3.54	51
$6 - 8,000	33.79	12.20	36	6.90	3.31	48
$8 - 10,000	36.46	14.70	40	8.03	4.21	52
$10,000 and over	38.20	9.73	25	7.48	2.19	29

1/ 1955 Household Food Consumption Survey.
2/ Excludes alcoholic beverages.
3/ Includes butter.
4/ Value of foods purchased, home-produced, or received as gift or pay.
5/ Includes 1-person households and other households not classified by income.

Table 22.- Contribution of home production to money value of all dairy products used at home, U. S. rural households, in a week in spring 1942 and 1955 1/

Year	Rural nonfarm			Farm		
	All dairy products used at home	Home-produced dairy products		All dairy products used at home	Home-produced dairy products	
		Value	Percentage of all dairy products used		Value	Percentage of all dairy products used
	Dollars	Dollars	Percent	Dollars	Dollars	Percent
1942	2.09	0.71	34	3.56	3.03	85
1955	3.97	.31	8	5.88	3.64	62

1/ 1942 data from U. S. Department of Agriculture Miscellaneous Publication No. 550, Family Food Consumption in the United States; 1955 data from 1955 Household Food Consumption Survey. Includes value of butter used.

Table 23.- Use of selected purchased dairy products and margarine at home, per person, by urbanization and region, in a week in spring 1955 1/

Urbanization and region	Fluid whole milk	Butter-milk	Skim milk	Evaporated milk	Ice cream 2/	Cheese 3/	Butter	Margarine
	Quarts	Quarts	Quarts	Pounds	Quarts	Pounds	Pounds	Pounds
All urbanizations	2.45	0.11	0.07	0.29	0.31	0.18	0.17	0.20
Northeast	3.04	0.04	0.08	0.22	0.29	0.21	0.23	0.19
North Central	2.91	0.06	0.08	0.16	0.39	0.18	0.24	0.19
South	1.42	0.22	0.02	0.46	0.24	0.15	0.06	0.19
West	2.78	0.07	0.17	0.35	0.35	0.20	0.17	0.25
Urban	2.93	0.11	0.10	0.26	0.33	0.19	0.20	0.20
Northeast	3.26	0.04	0.08	0.19	0.25	0.21	0.25	0.15
North Central	3.35	0.08	0.12	0.15	0.38	0.19	0.24	0.19
South	2.01	0.26	0.03	0.45	0.32	0.17	0.08	0.24
West	2.93	0.09	0.22	0.30	0.37	0.20	0.18	0.26
Rural nonfarm	2.34	0.12	0.05	0.42	0.29	0.17	0.14	0.23
Northeast	2.84	0.04	0.11	0.30	0.38	0.21	0.17	0.30
North Central	3.20	0.04	0.04	0.21	0.38	0.17	0.21	0.22
South	1.30	0.25	0.01	0.61	0.18	0.14	0.06	0.18
West	3.08	0.04	0.08	0.56	0.30	0.20	0.14	0.27
Farm	0.61	0.05	0.01	0.17	0.31	0.15	0.15	0.13
Northeast	0.88	0.01	0.03	0.13	0.44	0.20	0.19	0.22
North Central	0.87	0.03	0.02	0.10	0.44	0.17	0.28	0.12
South	0.30	0.07	4/	0.21	0.19	0.12	0.03	0.11
West	0.91	0.05	4/	0.29	0.32	0.18	0.18	0.18

1/ 1955 Household Food Consumption Survey.

2/ Includes ice milk, frozen custard, and mellorine.

3/ Excludes cottage cheese. 4/ Less than 0.005 quarts.

Table 24.- Total use of selected dairy products and margarine from all sources at home, per person, by urbanization and region, in a week in spring 1955 1/

Urbanization and region	Fluid whole milk	Butter-milk	Skim milk	Evaporated milk	Ice cream 2/	Cheese 3/	Butter	Margarine
	Quarts	Quarts	Quarts	Pounds	Quarts	Pounds	Pounds	Pounds
United States	3.01	0.17	0.09	0.29	0.32	0.19	0.20	0.20
Northeast	3.26	0.04	0.09	0.22	0.30	0.22	0.24	0.19
North Central	3.50	0.06	0.11	0.16	0.40	0.18	0.25	0.19
South	2.30	0.42	0.03	0.46	0.25	0.16	0.13	0.19
West	3.17	0.08	0.17	0.36	0.36	0.20	0.18	0.25
Urban	2.96	0.11	0.10	0.26	0.33	0.19	0.20	0.20
Northeast	3.29	0.04	0.08	0.19	0.26	0.21	0.25	0.15
North Central	3.36	0.08	0.13	0.15	0.40	0.19	0.24	0.19
South	2.08	0.27	0.03	0.45	0.33	0.17	0.09	0.24
West	2.95	0.09	0.22	0.30	0.38	0.20	0.18	0.26
Rural nonfarm	2.78	0.19	0.05	0.42	0.30	0.19	0.17	0.23
Northeast	3.03	0.05	0.11	0.30	0.39	0.27	0.19	0.31
North Central	3.39	0.04	0.04	0.21	0.39	0.17	0.22	0.22
South	2.11	0.40	0.02	0.61	0.18	0.15	0.13	0.18
West	3.28	0.06	0.08	0.57	0.30	0.21	0.15	0.27
Farm	3.68	0.42	0.11	0.17	0.32	0.16	0.27	0.13
Northeast	3.99	0.12	0.18	0.14	0.45	0.22	0.28	0.22
North Central	4.16	0.05	0.18	0.10	0.45	0.18	0.34	0.12
South	3.11	0.82	0.05	0.21	0.19	0.14	0.23	0.11
West	4.50	0.09	0.01	0.29	0.32	0.19	0.26	0.18

1/ 1955 Household Food Consumption Survey.
2/ Includes ice milk, frozen custard, and mellorine.
3/ Excludes cottage cheese.

What appear to be the main reasons for the differences in purchase rates? The quantities of certain purchased dairy foods used per person in southern urban households probably are lower because of short supplies (and relatively high prices), lower incomes, and the lack of adequate storage and transportation facilities (e.g. refrigeration in the homes, retail outlets, distribution centers, etc.). Patterns set in the past seem to have held over despite the population movement from farm areas and the relatively large increases in incomes. 19/ The relatively higher retail price for fluid whole milk in the South in combination with lower income, as compared with other regions, probably holds down southern whole milk consumption.

Higher consumption rates for buttermilk and evaporated milk in the South than in other regions probably are also associated with the availability of the products, relative prices, and income. Buttermilk is more widely used because of less strict refrigeration needs, and it was priced lower in the urban areas of the South than in the other urban areas. The use of buttermilk and evaporated milk in the home baking of biscuits and other hot breads, traditionally very important in southern diets, also helps the demand for these products. 20/

Much of the discussion of consumption patterns in this article has been concerned with overall figures (i.e. averages for broad groups of households). This was done in order to give readers a picture of the wide scope of the data on dairy foods in the 1955 survey, within the short time and space available. 21/

Shifting from consideration of overall figures to details, let us now look at the data for purchased dairy items on a per person basis for North Central urban households by income (table 25). This reveals differences in purchases of households grouped by family income classes when the urbanization and regional factors are held constant and household size differences are averaged out. Purchases of fluid whole milk increased markedly in the lower-income groups, but tended to level off at incomes above $6,000. Ice cream purchases showed much the same relationship to income, although they leveled off somewhat lower on the income scale.

19/ See article on "Food Consumption in the South" elsewhere in this issue.

20/ See Household Practices in the Use of Foods, Three Cities, 1953, USDA Agr. Inform. Bul. No. 146, pp. 29-34.

21/ As analysts take time to digest the data in the survey reports, they will undoubtedly want to depart more from the overall figures and look into the details of consumption patterns by urbanization, region, food source, and income for various foods and groups of foods. Some of these more detailed analyses will appear in future issues of The Dairy Situation. Later on, analysts will probably want to consider special tabulations of these data, using other controls (e.g. household size, family type, age and education of the homemaker, etc. whether or not the homemaker is employed, quantities of other foods used, etc.).

Table 25.- Quantity of selected dairy products and margarine used at home per person in North Central urban households, in a week in spring 1955 1/

1954 money income after income taxes	Fluid whole milk	Skim milk	Evaporated milk	Ice cream 2/	Cheese 3/	Butter	Margarine
	Quarts	Quarts	Pounds	Quarts	Pounds	Pounds	Pounds
All households	3.36	0.13	0.15	0.40	0.19	0.24	0.19
1-person households	2.49	.11	.17	.32	.19	.28	.29
Households of 2 or more persons 4/	3.38	.13	.15	.40	.20	.24	.19
Under $2,000	2.56	.14	.23	.26	.20	.19	.25
$2-3,000	3.22	.16	.25	.30	.17	.24	.15
$3-4,000	3.32	.02	.25	.36	.20	.21	.21
$4-5,000	3.38	.06	.16	.43	.18	.19	.20
$5-6,000	3.51	.10	.12	.38	.16	.24	.20
$6-8,000	3.67	.11	.13	.39	.21	.23	.18
$8-10,000	3.09	.26	.02	.46	.19	.32	.18
$10,000 and over	3.46	.48	.02	.46	.23	.40	.15

1/ Derived from 1955 Household Food Consumption Survey Report No. 3, *Food Consumption of Households in the North Central Region*, U. S. Department of Agriculture, Washington, D. C.

2/ Includes ice milk, frozen custard, and frozen desserts with vegetable fats.

3/ Excludes cottage cheese.

4/ Includes households not classified by income.

Purchases of fresh cream and skim milk increased rapidly with income. The 1955 U. S. urban pattern for fresh skim milk is very different from that in 1948 when urban households of two or more persons in the lower-income classes used by far the greatest quantities of skim milk. The 1955 purchases of butter rose with income across the income range, but did not increase quite as fast in the North Central Region as in others. Buttermilk and evaporated milk purchases by North Central urban households fell as income increased. (See cover chart for comparison of U. S. and southern quantity used-income relationship on a per household basis.)

How Can These Survey Data Help Us Understand and Explain Changes in Rates of Consumption?

Data on per capita consumption of dairy products (time series data) regularly given in table 3 of The National Food Situation and in other AMS publications 22/ show basic trends in consumption over the years, but more detailed information on variations in consuming patterns of major groups in the population is needed for their analysis. Surveys, such as 1955 Household Food Consumption Survey help to supply this need. 23/

For example, time series data show that between 1948 and 1955 the apparent civilian per capita consumption of total milk decreased somewhat, although in recent years the trend has been slightly reversed. In general, milk solids-not-fat has been moving up in consumption and approaching its high point of 1946. Milk fats have been trending downward, although increasing somewhat during the last few years. Total civilian consumption of fluid whole milk has increased slowly but steadily since 1948. Over this period, the consumption rates for buttermilk, evaporated milk, and cream have decreased rather sharply, while ice cream (including ice milk, frozen custards, and mellorine), cheese, and nonfat dry milk have increased markedly. Butter has decreased also, but the consumption rate has leveled off some in recent years. On the other hand margarine consumption per capita increased sharply until the last couple of years.

22/ The Dairy Situation, Dairy Statistics and Related Series, AMS Statistical Bulletin No. 134, and Supplement for 1954 to Consumption of Food in the United States, 1909-52, USDA A. H. No. 62.

23/ Other data of this type are published regularly in the AMS reports, Household Purchases of Butter, Fluid Whole Milk and Fluid Skim Milk (monthly) and Household Purchases of Butter, Cheese, Nonfat Dry Milk Solids, Margarine by Regions and Retail Sales Outlets (quarterly), which are based on the purchases reported by members of a continuous consumer panel. This panel survey yields data on both purchase patterns (i.e. cross section data), although not in as much detail as the new 1955 (personal interview) survey, as well as on changes in purchases over regular short periods of time (i.e. time series data). Since the 1955 survey data have just become available, there has not been enough time to make a detailed comparison with the results of the panel survey. There are some differences in coverage, reporting and sampling errors, and manner of summarization peculiar to each type of survey which need to be considered.

Let us look now at household survey data for 1948 and 1955 to see first how they match the time series data. The directions of these trends have been generally similar to those shown by the comparison of changes in per person consumption rates derived from survey data for urban households in 1948 and 1955. Precise comparisons are impeded by differences in coverage and by the seasonality of consumption of dairy products.

How well do the 1955 survey data, which apply to consumption during a week in spring (April-June), represent annual 1955 household consumption patterns? It is impossible to answer this question directly, but there are indications that spring dairy product consumption patterns particularly for urban households, are usually a good approximation to annual patterns. 24/ Retail prices of dairy products in spring 1955 are close to the annual 1955 averages. Average quantities of whole milk sold for fluid consumption in selected marketing areas in April-June 1955 also are close to the 1955 annual average quantities sold. Survey data generally apply to housekeeping households, which in the spring of 1955 represented about 93 percent of the occupied dwelling units of the country. Consumption by household members away from home and by other persons in eating places was not covered. The 1948 data referred to above (and that part of the 1955 data comparable with them) apply only to the purchases of urban housekeeping households of two or more person.

Next, we can examine the cross-section data (i.e. the survey data) for two survey dates to find out what changes have occurred in the patterns of consumption. Some researchers compare this process to holding the overall (time-series) consumption data under a microscope in order to see the inner workings of changes in consumption by region, urbanization, income, or other socio-economic factors which are likely to affect the consumption rate and its trend in the future. Cross-section data do not fill in all the gaps, of course, for there are quite a few technical problems and everyone does not read the same implications through this "microscope". But with some ingenuity and consideration of various interpretations of the data, information from the new survey can probably contribute to improved analyses of historical patterns and better forecasts of future patterns.

Take the changes in butter and margarine consumption, for example. We have noted above that the per capita consumption of butter had decreased sharply since 1948 while margarine had increased a great deal.

Here are the ratios of U. S. civilian per capita consumption in 1948 and 1955 to the annual average for 1942:

	1942	1948	1955
	Pct.	Pct.	Pct.
All table fats	100	86	92
Butter	100	63	57
Margarine	100	222	296

24/ Seasonal Patterns of Food Consumption, City Families, 1948. Special Report No. 3 of 1948 Food Consumption Survey, ARS, USDA and Food Consumption of Urban Families in the United States (1948), USDA Agr. Inform. Bul. No. 132.

The nationwide surveys in spring 1955 and spring 1942 showed these ratios for average consumption per person in households: All table fats (i.e. butter and margarine), 93 percent; butter, 54 percent; margarine 333 percent. From these two sets of figures we surmise that the shift from butter to margarine has been greater in homes than in eating places away from home, including restaurants and school lunches. Supporting this hypothesis is the fact that in 1955 almost 8 percent of the civilian per capita consumption of butter came from CCC supplies or was bought wholly or partly with Government funds and was distributed to school lunch programs, institutions and other non-household uses. 25/ In 1942 and 1948 practically no butter was so distributed.

The data from the 1948 urban household survey and from the matching segment of the 1955 survey show a 13 percent decline from spring 1948 to spring 1955 in average quantity of butter used per person in urban households and a 11 percent increase for margarine. Over the same period, average consumption of butter per capita for the entire population declined 10 percent while use of margarine increased 33 percent. Possible explanations of these differences in rates of change are: (a) less decline in use of butter by rural households (particularly in the North Central Region) and in use outside homes, such as in restaurants, school lunches, institutions; (b) greater increases in use of margarine by rural households (particularly in the South) and in eating away from home. Another factor to be considered here is the non-table fat uses of margarine (e.g. as shortening), where it is more in competition with other fats.

Now let us look at patterns of table fat use by the three urbanization categories in spring 1942 and spring 1955 (table 26).

Table 26.- Household consumption of table fats per person and distribution of housekeeping households, by urbanization, United States, in a week in spring 1942 and 1955 1/

Urbanization	1942				1955			
	Average consumption per person			Distribution of households	Average consumption per person			Distribution of households
	Table fats	Butter	Margarine		Table fats	Butter	Margarine	
	Lb.	Lb.	Lb.	Pct.	Lb.	Lb.	Lb.	Pct.
All U. S.	0.43	0.37	0.06	100	0.40	0.20	0.20	100
Urban	.42	.37	.05	61	.40	.20	.20	62
Rural nonfarm	.39	.30	.09	22	.40	.17	.23	27
Farm	.48	.45	.03	17	.40	.27	.13	11

1/ 1942 data from USDA Misc. Pub. No. 550, Family Food Consumption in the United States; 1955 data from 1955 Household Food Consumption Survey.

25/ Table 8, The Dairy Situation, DS-257, November 1956.

These figures indicate that the largest part of a small decline in the per person consumption of table fats in households from 1942 to 1955 came from a 17 percent drop in average use per person in farm households and from the drop in the proportion of farm households. In 1955 each urbanization group reported about the same average use of table fats combined. Households in all three urbanization groups probably shifted from butter to margarine use, the average decrease in pounds of butter used per person in households being roughly the same in each of the groups. The per person poundage increase in margarine consumed averaged about the same for all three urbanization groups, with the farm group somewhat lower in increase.

Regional data from the 1955 survey provide important clues to past changes in use of table fats and will undoubtedly affect our thinking about future prospects. The per person consumption rates for each regional break of each urbanization group, (given in table 24), are probably greatly affected by the incomes of families in each group, but we look at overall patterns first. We find that the lowest rates for total table fats were in the South, mostly in the generally lower level of butter usage by urban households in that area. (However, prices paid by southern urban households for butter averaged 4 to 6 cents higher per pound than for other regions, but prices paid for margarine ran lower.) Northeastern households classified as rural nonfarm and farm reported heavy use of table fats, including higher rates for margarine than in comparable groups of other regions.

Average consumption of butter in spring 1955 ran generally lower for all urbanization groups in the South and West than in the Northeast and the North Central Region. Since the South has the lowest proportion of urban households in the country, substantial increases in urban population may be coming in the next decade in that area which had the lowest rate of butter consumption in spring 1955. On the other hand, 82 percent of all farm households in spring 1955 were in the South and North Central Region, where future declines in farm population will likely occur. Farm households in these areas reported particularly low rates of margarine consumption.

We cannot satisfactorily evaluate the effects of income, urbanization, and region on consumption of butter and margarine in the last 15 years because of the effects of changes in legal restrictions affecting margarine sales 26/, wartime shortages of butter, changes in relative prices, and quality changes in both items, especially in margarine. However, study of per person consumption patterns of urban households in the whole country grouped by income in 1942, 1948 and 1955 reveals important changes in relationships. First, there were no major differences across the income range in per person use of table fats

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26/ Between spring 1942 and spring 1948 eight States repealed prohibition on sale of yellow margarine. Eighteen more repealed such laws between spring 1948 and spring 1955.

in each of the three surveys. Second, consumption of butter rose less with income in 1955 than in 1942 and 1948. Third, relationships of margarine consumption to family income changed drastically from 1942 to 1955. In 1942, margarine use declined sharply with income. This relationship was much less sharp by 1948 and by 1955 it had leveled out. Fourth, the big change in the relative position of butter and margarine, with respect to income, came between 1942 and 1948. 27/

For further information on the relationships of butter and margarine consumption rates to income, we look at the 1955 U. S. and regional averages for urban households grouped by income. Consumption of butter per person in southern households increased less with income than in the other regions. The margarine consumption—income relationships for urban households outside the South failed to show clear cut patterns, although in general showing about the same consumption rate across the income scale. Margarine use by southern urban households rose with income up to the $6,000 income level and then leveled off.

From this preliminary analysis, we may conclude that future changes in butter and margarine consumption rates will reflect the interplay of such factors as changes in degree of urbanization, regional population shifts, distribution of changes in income, and changes in relative prices.

In addition, future findings on nutritional research concerning the relationship of fat and health might materially affect the future demand for one or the other or both of these table fats.

27/ See Dairy Products in City Diets, Commodity Summary No. 6 of 1948 Food Consumption Survey, ARS, USDA, p. 5.